

MIND OVER MATTER: ENHANCING COMPASSION SATISFACTION IN ONCOLOGY NURSING

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ABSTRACT

Jacob R Haskins: Mind Over Matter: Enhancing Compassion Satisfaction in Oncology Nursing
(Under the direction of Cheryl B. Jones)

Oncology nurses deal with many occupational stressors in an ever-changing health care environment. They are also witness to many traumatic incidents involving patient suffering and patient death. These experiences can lead to the nurses developing compassion fatigue, which affect work productivity, job satisfaction, and nurses' ability to adequately care for their patients. Literature suggests that mindfulness based interventions are effective in preventing and reducing the effects of compassion fatigue for nurses in the oncology field. However, mindfulness interventions described in published research are expensive and often require nurses to take six to eight weeks away from their job, a requirement that may prove difficult for the nurses and their organizations. This project utilized smart phone applications to provide guided mindfulness meditations to address compassion fatigue for nurses on two-inpatient oncology units at a large academic medical center. The meditation intervention reduced compassion fatigue and enhanced compassion satisfaction for the participants. The intervention was a cost-effective method to help nurses cope with their work environment and should be integrated into oncology organizations to help prevent Compassion Fatigue.

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TABLE OF CONTENTS

LIST OF TABLES.....	ix
LIST OF ABBREVIATIONS.....	x
CHAPTER 1: INTRODUCTION.....	1
Purpose of the DNP Project.....	1
Significance of the DNP Project.....	2
Definition of Relevant Terms.....	3
Chapter Summary.....	4
CHAPTER 2: REVIEW OF LITERATURE.....	5
Chapter Introduction.....	5
Synthesis of Literature.....	5
Factors Associated with Compassion Fatigue.....	6
Burnout and Secondary Traumatic Stress.....	6
Compassion Satisfaction.....	8
Interventions from the Literature.....	9
Bereavement Programs.....	9
Healthy Work Environment.....	10
Mindfulness.....	11
Chapter Summary.....	15
CHAPTER 3: THEORETICAL FRAMEWORK.....	16
Chapter Introduction.....	16

Theoretical Framework.....	16
Chapter Summary.....	18
CHAPTER 4: PROJECT PLAN.....	19
Chapter Introduction.....	19
Design.....	19
Setting.....	19
Participants.....	20
Recruitment.....	21
Description of the Intervention.....	21
Strategies to Address Implementation Barriers.....	23
Measurements.....	25
Mindful Attention Awareness Scale (MAAS).....	25
Profession Quality of Life (ProQOL).....	26
Data Analysis.....	27
Chapter Summary.....	28
CHAPTER 5: RESULTS.....	29
Chapter Introduction.....	29
Participant Characteristics	29
Outcomes of the Intervention.....	32
Chapter Summary.....	34
CHAPTER 6: DISCUSSION.....	35
Chapter Introduction.....	35
Discussion.....	35

Intervention Sustainability.....	37
Recommendations for Clinical Practice.....	38
Recommendations for Future Research.....	39
Limitations.....	39
Project Dissemination Plan.....	40
Conclusion.....	40
APPENDIX A: OREM’S SELF-CARE DEFICIT THEORY.....	42
APPENDIX B: PRE-INTERVENTION SURVEY.....	43
APPENDIX C: POST-INTERVENTION SURVEY.....	44
APPENDIX D: MOTIVATIONAL INTERVIEWING SURVEY.....	45
APPENDIX E: MINDFUL ATTENTIVE AWARENESS SCALE (MAAS).....	46
APPENDIX F: PROFESSIONAL QUALITY OF LIFE (PROQOL).....	48
REFERENCES.....	50

LIST OF TABLES

Table 1. Descriptive Statistics	29
Table 2. Correlations of Baseline Measures	31
Table 3. Correlations of Baseline Measures (Cont.)	32
Table 4. Measurement Statistics	32
Table 5. Paired Samples t test	34

LIST OF ABBREVIATIONS

BMT	Bone Marrow Transplant
BMTU	Bone Marrow Transplant Unit
CF	Compassion Fatigue
CS	Compassion Satisfaction
DNP	Doctorate of Nursing Practice
GVHD	Graft Versus Host Disease
MAAS	Mindfulness Attention Awareness Scale
ON	Oncology Nurse
PI	Principal Investigator
ProQOL	Professional Quality of Life
RN	Registered Nurse
SON	School of Nursing
STS	Secondary Traumatic Stress

CHAPTER 1: INTRODUCTION

Oncology nurses (ONs) are vital to the physical, emotional, and spiritual recovery of their patients. These nurses are called on to meet the demands of treating cancer while providing compassionate care to their patients and their patients' caregivers (Russell, 2016). However, ONs are exposed to a unique set of work related stressors that can, at times, be a barrier to the compassionate care oncology nurses strive to provide (Denigris, Fisher, Maley, & Nolan, 2016). These stressors place oncology nurses at risk for a physical, emotional, and spiritual exhaustion known as compassion fatigue (Aycock & Boyle, 2009).

Compassion fatigue (CF) is a combination of feelings of burnout and frustration as well as stress related to traumatic events (Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). Many of the physical symptoms associated with CF are similar to the physical symptoms of prolonged stress. Apathy, fatigue, poor concentration, medication errors, and depersonalizing patients are negative aspects of compassion fatigue that directly affect patient care (Aycock & Boyle, 2009). Compassion fatigue is also associated with low retention rates that can be costly to oncology units (Houck, 2014). Cancer centers have a vested interest in addressing compassion fatigue to improve staff and patient satisfaction and outcomes.

Purpose of DNP Project

The purpose of this project was to identify and implement an evidence-based practice in the treatment and prevention of compassion fatigue among ONs of two Adult Inpatient Oncology Units at a large Academic Hospital toward the goal of significantly reducing compassion fatigue. The project's secondary aim was to improve dispositional mindfulness and compassion

satisfaction in ONs at the study site. Accomplishing these aims would enhance the ONs positive associations with caring for oncology patients.

Significance of the DNP Project

The triple aim for health care improvement calls for increasing patient satisfaction, improving population health, and reducing costs of care (Berwick, Nolan, & Whittington, 2008). Bodenheimer & Sinsky (2014) argue that the triple aim cannot be accomplished without addressing the quality of life of health care workers. For oncology nurses improving professional quality of life means increasing compassion satisfaction, reducing burnout, and reducing risk factors associated with compassion fatigue. Potter et al. (2010) reported that approximately 37% of inpatient oncology health care workers at a Midwestern United States Cancer Center were at high risk for compassion fatigue. Similarly, a study at Memorial Sloan-Kettering Cancer Center found that 44% of inpatient oncology nurses reported symptoms of burnout associated with compassion fatigue (Emanuel, Ferris, Von Gunten, & Von Roenn, 2005). The high prevalence of compassion fatigue among ONs negatively affects the health of oncology nurses and potentially the health of the patients (Aycock & Boyle, 2009). It may also lead to increased absenteeism, turnover rates, and eventually, organizational costs.

Nurses on the two project units recently noted increases in occupational stressors. Both units underwent expansion in both the number of inpatient beds and the types of patients receiving services. Both units intermittently experienced critical staffing shortages, since expansion. Recently, an organized breakfast was held for the staff of one of the units to discuss work related stress and secondary traumatic stress on the unit. Common themes brought up at the breakfast were coping with patient death, staffing shortages, and growing apathy towards patient care. All of which are associated with compassion fatigue on oncology units (Aycock &

Boyle, 2009). One nurse in particular openly shared that she reserves her compassion for her immediate family. The nurse went on to say that she is not as compassionate towards her patients today as she was when she began on the unit in an effort to protect herself from the stress associated with watching patients suffer or die from treatment complications. These feelings may lead to less compassionate care for oncology patients or the nurse leaving the field of oncology, both of which has a negative impact on the health care organization. These nurses needed a strategy to refuel their compassionate energy and prevent the negative sequelae of compassion fatigue.

Definition of Relevant Terms

The following terms are relevant to this project:

- Compassion Fatigue – Physical, emotional, and spiritual exhaustion brought on by feelings of burnout and secondary traumatic stress in the workplace (Duarte & Pinto-Gouveia, 2016).
- Burnout – Feelings of hopelessness or the inability to perform work duties brought on by occupational stressors (Wu et. al, 2016). One of the two components that makeup compassion fatigue.
- Secondary Traumatic Stress – Stress associated with witnessing patient suffering and death (Hevezi, 2015). One of the two components that makeup compassion fatigue.
- Compassion Satisfaction – Positive feelings associated with helping others (Hevezi, 2015).
- Mindfulness – Bringing attention to and awareness of the present moment improving the self-regulation of behaviors and emotions (Kabat-Zinn, 1990).

- Dispositional mindfulness – Someone’s awareness and attention to their present moment (Brown & Ryan, 2003). Measured using the Mindfulness Attention Awareness Scale (MAAS).

Chapter Summary

This chapter presented the significance of the problem of compassion fatigue and the importance of compassion satisfaction in oncology nursing. It introduced the purpose of this DNP project, which is to integrate evidence-based practice in an effort to significantly reduce compassion fatigue and to enhance compassion satisfaction in Oncology Nurses on two adult inpatient oncology units. Chapter 2 presents a synthesis of the literature and presents the studied interventions with the strongest supporting evidence. Chapter 3 presents the theoretical framework that will be the foundation for the project plan. Chapter 4 discusses the project plan, design, and overall description of the project. Chapter 5 describes the data collection and analysis used to produce project results. Finally, Chapter 6 presents a discussion of the data, as well as, recommendations for clinical practice.

CHAPTER 2: REVIEW OF LITERATURE

Chapter Introduction

This chapter presents the search methods used to find current literature on the problem of compassion fatigue. It also presents a description of the major factors associated with compassion fatigue as well as interventions to reduce or prevent CF.

Synthesis of Literature

Literature was gathered through PubMed, Cochrane and CINAHL databases. The search terms used in the PubMed and CINAHL databases were “compassion fatigue”, and “adult oncology”, and “nursing”. The search did not yield any results in the Cochrane database so the search was broadened to only using the search term “compassion fatigue”. Inclusion criteria for the literature search were a focus on empirical research conducted in inpatient oncology care and reporting outcomes related to compassion fatigue. Exclusion criteria included pediatric oncology care, outpatient oncology care, oncology physicians, and outcomes only related to oncology patients and family caregivers.

After applying these inclusion and exclusion criteria, 40 unique articles were obtained. Limitations of this review were that much of the literature analyzed were low powered studies and not easily generalizable to larger populations of oncology nurses. The articles were analyzed for common themes and separated into factors associated with CF and interventions to reduce CF.

Factors Associated With Compassion Fatigue

Several key factors associated with CF were described in the literature. These factors are described below.

Burnout and secondary traumatic stress. Burnout and secondary traumatic stress are the two root causes of compassion fatigue (Stamm, 2010). Burnout is associated with workplace stressors and is a contributing factor in compassion fatigue (Wu et al., 2016). One of the professional stressors that oncology nurses have in common with nurses in other fields is having little perceived power to affect change at work (Cohen-Katz et al., 2005). This was echoed in much of the literature in the form of ethical dilemmas where the nurse perceives the treatment of the patient to be too aggressive or not in the patient's best interest, but that the team decides to pursue the treatment anyway (Aycock & Boyle, 2009; Douglas & Daly, 2014; Gomez-Urquiza et al., 2016). Poor communication amongst the team members could be a contributing factor to these ethical dilemmas experienced by the nurse (Denigris, Fisher, Maley, & Nolan, 2016). Other literature suggests that the experience of staffing shortages is a major source of stress among ONs (Hildebrandt, 2012; Gilman et al., 2015).

Occupational stress that is more specific to the oncology field includes caring for higher acuity patients and preventing exposure to infectious disease (Gillman et al., 2015). Patients undergo complicated chemotherapy regimens that cause them to be immunocompromised and prone to infections, which can create a heavy work burden on oncology nurses. These treatment regimens are constantly being improved due to new published research and nurses are expected to stay up to date on continuously changing treatment protocols for patients. Oncology nurses also put themselves at risk by administering hazardous medications (chemotherapy, biotherapy, etc.) on a regular basis. None of the literature suggested that CF comes about due to any one

particular stressor, but instead to prolonged exposure to multiple stressors (Aycock & Boyle, 2009).

In one study, over 600 Chinese oncology nurses were surveyed to describe the prevalence and predictors of compassion fatigue in China (Yu, Jiang, & Shen, 2016). They found that there was a higher incidence of compassion fatigue in nurses with more years of experience. A survey study of over 500 oncology nurses in the United States and Canada found that nurses with more years of experience were less likely to experience compassion fatigue (Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). A study of 101 oncology nurses in Melbourne, Australia found that some of the top perceived work related stressors were not letting the patient die, watching a patient suffer, the inability to get all of the work done in a shift, hospital services not being available at all times, and making mistakes (Barnard, Street, & Love, 2006). The highest perceived stress of oncology nurses typically deals with giving emotional support and dealing with patient suffering (Cohen-Katz et al., 2005). These stressors can be categorized as secondary traumatic stress.

Secondary traumatic stress can be described as experiencing the trauma of your patients and can manifest itself in many different ways (Hevezi, 2015). Coping with patient suffering in the workplace is one example and can be especially traumatic for a nurse when the nurse believes that they are prevented from carrying out ethically appropriate care due to conflicts within the healthcare team (Aycock & Boyle, 2009). Another form of secondary traumatic stress occurs when a patient dies. Oncology nurses develop rapport with their patients through empathetic relationships and they expect to create positive health outcomes for their patients (Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). Internal conflict can arise when the patient's health status does not improve. When a patient dies, the grief experienced by the nurse can be

overwhelming. This leads the nurse to face the inevitability of their own mortality (Gomez-Urquiza et al., 2016). Unresolved grief could affect the nurse's ability to empathize or develop relationships with future patients.

Compassion Satisfaction. Although working in the oncology field may lead to compassion fatigue, it may also lead to positive benefits for the nurse as well. These positive aspects of oncology nursing can be described as compassion satisfaction. In a descriptive study of 20 oncology nurses at an urban teaching hospital in Pennsylvania, researchers found that nurses reported more positive feelings than negative ones in oncology care (Denigris, Fisher, Maley, & Nolan, 2016). These nurses experienced high compassion satisfaction, which may serve as a protectant from experiencing compassion fatigue. Further, compassion satisfaction was found to have a negative correlation with burnout in multiple studies (Gomez-Urquiza et al., 2016; Yu, Jiang, & Shen, 2016; Hevezi, 2015). Fetter (2012) suggested that methods to enhance nurses' feelings of personal achievement and help bring closure after a patient has passed may improve compassion satisfaction and, in turn, reduce CF.

A survey study of over 500 oncology nurses in the United States and Canada found that nurses who experienced compassion satisfaction were less likely to feel the effects of compassion fatigue (Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). The study determined that workplace policies that increased the time nurses spent with the patient improved compassion satisfaction. Another study found that compassion satisfaction developed from helping others (Hevezi, 2015). Hevezi measured compassion satisfaction as a part of a quality of work life score and found that short meditation sessions improved the outcome measure of compassion satisfaction.

Overall, the literature substantiates both positive and negative effects to giving compassionate care. Compassion satisfaction encompasses the positive feelings associated with caring for oncology patients. Burnout and secondary traumatic stress encompass the negative aspects of oncology care and are the two key components of compassion fatigue (Aycock & Boyle, 2009). Oncology units need to implement interventions that improve compassion satisfaction while reducing the feelings of burnout and secondary traumatic stress that make up CF.

Interventions from the Literature

Several interventions implemented to reduce or prevent CF were identified from the literature. Each of these will be discussed below.

Bereavement programs. In a descriptive study, Lewis (1999) conducted a scoping literature review on factors associated with compassion fatigue and grief resolution in oncology nurses. Lewis determined that a bereavement program developed to help nurses deal with unresolved grief in the workplace would help reduce stress associated with oncology nursing. The program involved training oncology nurses about their role in end-of-life care and increasing staff awareness of how patient loss is affecting them. Lewis (1999) developed the program based on the literature review as well as available resources at his local setting. Unfortunately, the program was not examined for its effectiveness in grief resolution and reduction in compassion fatigue.

Another bereavement program was initiated in a community hospital's oncology unit (Fetter, 2012). Nurses gained closure in this program to the loss of patients through open discussion of compassion fatigue, patient suffering, and patient deaths. The effectiveness of this program was measured by distributing a survey with open-ended questions to the nurses on the

unit. A majority of those who responded (88%) said the program helped them gain closure after patient death. The unit also showed a decrease in nurse turnover a year after the program was initiated. The strength of these findings were low because most of the data gathered were subjective and collected after the bereavement program had already been initiated.

Hildebrandt (2012) conducted a scoping review of 18 articles on grief resolution in the workplace and found some evidence of reduction in compassion fatigue on units where bereavement models were initiated. The review reported that bereavement models that encouraged emotional expression and created mutually supportive environments were associated with lower compassion fatigue and burnout.

Healthy work environment. One method for combating compassion fatigue reported in the literature is the creation of a healthy work environment to combat work-related stressors on oncology nursing units. In a descriptive study, 61 oncology nurses throughout the United States were surveyed on organizational factors associated with compassion fatigue and organizational factors associated with compassion satisfaction (Aycock & Boyle, 2009). Organizational factors associated with a healthy work environment and lower levels of compassion fatigue include adequate staffing, encouraging peer support, staff training on self-care, allowing for emotional expression, having professional support available to staff and incorporating staff retreats away from work. A descriptive, mixed-method study had questionnaires and in-depth interviews with 20 oncology nurses to determine their level of compassion fatigue. Based on those interviews the researchers determined that a healthy work environment that reduces CF for oncology nurses should include a peer-to-peer support network (Denegris, Fisher, Maley, & Nolan, 2016). A systematic review of 20 studies found that work environments that promote within team connections, provide training for how to cope with stress, and provide professional assistance

with dealing with work stressors were helpful in reducing compassion fatigue (Gillman et al., 2015).

A scoping review of 18 articles found a number of recommendations for creating a healthy work environment (Hildebrandt, 2012). The two main recommendations were to create an environment that encourages emotional expression in the workplace and a mutually supportive environment so that nurses can discuss their grief and stress at work instead of suppressing these concerns. In a study of oncology nurses from the United States and Canada, a healthy work environment was described as a reason for high compassion satisfaction and low compassion fatigue (Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). Nurses that perceived a high level of team cohesiveness experienced less compassion fatigue and burnout. Much of the literature and surveys of oncology nurses suggested that healthy and positive work environments are important and should be targeted with interventions to reduce compassion fatigue (Aycock & Boyle, 2009; Hildebrandt, 2012; Wu, Singh-Carlson, Odell, Reynolds, & Su, 2016). However, the details of what makes a healthy work environment are vague and many interventions were not examined for their impact on compassion fatigue. A consensus on what entails a healthy work environment and more high-powered studies are needed to create evidenced based practice for oncology units.

Mindfulness. One of the ways that can help prevent or reduce CF among oncology nurses is to use effective mental health self-care practices that support their ability to recover from the stressors that lead to CF (Denegris, Fisher, Maley, & Nolan, 2016). A number of psycho-educational techniques have been identified to help develop the awareness and mental skills nurses need to combat CF (Gillman et al., 2015). These techniques assist nurses in lowering the intensity of their stress or to recover from stress as well as help nurses to better

process their emotions. Many of the techniques discussed in the literature involved mindfulness training. The idea behind mindfulness training is to bring one's focus to the present moment and to not let past experience or anxieties about the future affect your behaviors (Kabat-Zinn, 1990). Because oncology nurses' negative experience with past patients may be affecting their relationships with current patients (Hildebrandt, 2012), mindfulness techniques can help prevent that from occurring.

Hevezi (2015) tested the theory of mindfulness on 15 oncology nurses in the San Diego Health System. The intervention involved short meditation sessions known as loving-kindness where the meditator encourages participants to transfer positive feelings to certain aspects or individuals in their life. Compassion fatigue and compassion satisfaction, were assessed before and after the intervention. Although small in scale, the intervention resulted in significant reductions in nurses' levels of compassion fatigue and increased their levels of compassion satisfaction.

In another mixed-methods randomized control trial, the authors reported significant reductions in burnout after implementing a mindfulness based stress reduction (MBSR) program (Cohen-Katz et al., 2005). The MBSR was developed by Jon Kabat-Zinn at the University of Massachusetts Medical Center as a way to use mindfulness meditation as a medically accepted treatment (Kabat-Zinn, 1982). The program was 8 weeks in length and met approximately 2.5 hours a week, with a 6 hour daylong retreat at the end of the program. The program taught mindful breathing, meditation, and loving-kindness exercises. The researchers randomized 27 health care workers employed at an academic community-based hospital to a control group or intervention group; the intervention group received the MBSR program while the control group was used for comparison and took the MBSR program at a later date. After taking part in the

MBSR program, the intervention group reported significantly lower burnout scores ($p=.001$). Common themes of self-compassion, self-awareness, and self-care were found through participant interviews. Many participants also reported improvements in personal relationships following the intervention.

Duarte & Pinto-Gouveia (2016) also reported significant reductions in compassion fatigue for 48 oncology nurses using an abbreviated MBSR program. The program was only 6 weeks in length and was adapted to make it more feasible for nurses to attend. The program similarly taught mindful breathing, meditation, and loving-kindness exercises throughout the 6 weeks and gave homework to participants to reinforce classroom education. The participants in this study were assigned to either an experimental group or a wait list control group and were compared before and after the intervention on a multitude of validated measures including the Professional Quality of Life Scale (ProQOL), a scale that is specifically designed to measure compassion satisfaction as well as the two components that makeup compassion fatigue: burnout and secondary traumatic stress (Stamm, 2010). After controlling for differences between groups, the authors found a significant decrease in compassion fatigue between pre- and post-intervention scores ($p<0.001$). The small sample size and the lack of randomization limit the quality of this study's findings, therefore larger control trials are needed to corroborate the study's results.

Many of the mindfulness interventions found in the literature were either recommended based on survey results from qualitative studies or recommended from low powered quantitative studies. Of the practice recommendations found in the synthesis of the literature, mindfulness meditation came from the highest-powered studies and provided the most significant reductions in compassion fatigue. However, the mindfulness based stress reduction program used in a

number of mindfulness studies would be significantly difficult to implement because of time and initial financial investment. Kabat-Zinn's (1982) original Mindfulness Based Stress Reduction (MBSR) program was multiple weeks in length. Another MBSR program offered by Duke Integrative Medicine (Durham, North Carolina) is ten weeks in length and costs approximately \$500 per participant (Duke Health, 2016). In one study, the time commitment of an MBSR program was reported to be an issue for nursing professionals, and the authors suggested that shorter interventions should be examined in future research (Ponte & Koppel, 2015). Another study reported that a shortened MBSR program still produced reductions in perceived stress among participants, but the study did not address the cost of the program (Pipe et al., 2009). Thus, the cost of these lengthy programs presents a financial barrier to recruiting project participants.

To address the issue of time and money, an established mindfulness meditation smartphone application may be a viable alternative method for providing daily, guided meditations to project participants. Meditation applications are both time- and cost-effective and have supporting evidence in their effectiveness for reducing perceived levels of stress (Carissoli, Villani, & Riva, 2015; Wen, Sweeney, Welton, Trockel, & Katznelson, 2017; Howells, Ivrtzan, & Eiroa-Orosa, 2016). Literature shows that participants with little to no meditation experience significantly increased their mindfulness scores over a 4-week period using a mobile mindfulness app (Chittaro & Vianello, 2015). Utilizing smartphone applications thus allows participants to receive the benefits of mindfulness without requiring time off work or investing a significant amount of money.

Bereavement programs, healthy work environments, and mindfulness-based meditation were all identified in the literature as interventions to reduce CF in oncology nurses. However,

the strength of literature supporting the bereavement programs and healthy work environment interventions was weak. Both interventions lacked sufficient evidence, and used weak study designs and data from surveys and interviews. Alternatively, mindfulness interventions have been rigorously tested in randomized control trials. While the literature varied on the type and amount of mindfulness intervention used, all showed reductions in the factors associated with CF. Therefore, based on the synthesis of the literature, a more reasonable recommendation for practice would be to implement a time- and cost-effective mindfulness meditation program to improve self-care in oncology nursing and reduce the risk of compassion fatigue.

Chapter Summary

This chapter presented a synthesis of the literature surrounding the problem of compassion fatigue in oncology nursing. A mindfulness meditation program was identified as an intervention with the most supporting evidence and will be utilized in this project. This intervention will aim to improve the self-care of Oncology Nurses. The next chapter will discuss self-care as the theoretical framework that will guide this project.

CHAPTER 3: THEORETICAL FRAMEWORK

Chapter Introduction

This chapter presents the theory of the problem of compassion fatigue and the approach to addressing it. The theory will serve as a framework to guide this project throughout the phases of project planning, implementation of an intervention, and discussion of the findings.

Theoretical Framework

Orem's Self-Care Deficit Theory (2001) will be used to guide this project. This theory posits that patients desire to care for themselves and that they can recover more quickly if they perform their own self-care. Orem defines self-care as the practice of individuals performing activities on their own behalf in order to maintain well-being (Orem, 2001). When an individual is unable to or limited in performing self-care, nursing or other interventions are needed. Self-Care Deficit Theory is comprised of three parts: self-care requisites, self-care deficits, and nursing systems, as shown in Appendix A. Self-care requisites are the actions individuals take in providing self-care and are divided into universal self-care, developmental self-care, and health deviation self-care (Orem, 2001). Universal self-care requisites include actions associated with life processes, such as maintaining adequate food, water, and air intake. Developmental self-care requisites are actions associated with developmental processes, such as adjusting to a new life event. Health deviation self-care requisites are actions associated with seeking appropriate health care when an individual experiences a health care problem or makes adjustments in response to a health problem or illness. In this case, an individual takes actions to be able to manage their own self-care.

Self-care deficits occur when an individual is unable to perform self-care to manage one of the self-care requisites (Orem, 2001). A deficit in self-care elicits a need for nursing care or intervention. Nursing systems describe the intervention that nurses should use and the amount of assistance the nurse should provide the individual in order for them to meet their self-care needs (Orem, 2001). The three major types of nursing systems provide interventions: wholly compensatory system, partly compensatory system, and supportive-educative system. In a wholly compensatory system, a patient is unable to perform any self-care and is completely dependent on the nurse to help them overcome a self-care deficit. In a partly compensatory system, a patient can perform some self-care activities, but needs some assistance from the nurse to overcome a self-care deficit. In a supportive-educative system, a patient can achieve their own self-care, but lacks the resources or education needed to do so. Self-Care Deficit Theory offers a useful framework for conceptualizing nurses' need to provide care for themselves, including the development of a plan for providing that care. The nature of nursing, and particularly those who care for very sick patients, often makes it difficult for nurses to care for themselves, and, in turn, may lead to compassion fatigue (Anderson & Gustavson, 2016).

In the case of compassion fatigue, as seen in Appendix A, when oncology nurses start to experience CF they must perform self-care in order to be in good health. When they are unable to perform self-care they experience a self-care deficit and suffer from the symptoms of CF. When a self-care deficit occurs a nursing system, an intervention is required to help these ONs achieve their self-care needs (Orem, 2001). The nursing system that best fits this self-care deficit is the supportive-educative system. This system should be used because oncology nurses have the ability to perform their own self-care, but they lack the resources or education needed to do

so. Based on this system, an intervention that teaches nurses about compassion fatigue, how to prevent it, and gives nurses the resources to prevent it will satisfy this self-care deficit.

Chapter Summary

This chapter presented Orem's self-care deficit theory and how it can be used to describe the problem of compassion fatigue and how this project should be designed to have the greatest impact of addressing the problem. The following chapter, utilizing this theoretical framework, will describe the project plan and its implementation.

CHAPTER 4: PROJECT PLAN

Chapter Introduction

This chapter presents the planning and implementation phases of this project. It describes, in detail, the steps that were taken to recruit, initiate an intervention on, and collect data on the participants of this project.

Design

This Doctoral of Nursing Practice project was a quality improvement project integrating evidence from literature into practice. The project implemented a mindfulness intervention to address, reduce, and/or prevent CF among ONs working on two adult inpatient oncology units in an academic hospital.

Setting

The project took place at a large, not-for-profit cancer hospital in North Carolina, the state's only public cancer hospital. The hospital treats thousands of patients with varying oncologic diagnoses and disease stages each year. The hospital is home to a Comprehensive Cancer Research Center that continuously enrolls patients in clinical trials to further develop treatments for various cancer diagnoses. This project was carried out on the hospital's two main inpatient oncology units. Both units admit only adult inpatient oncology patients, thus, oncology nurses caring for other patient populations (i.e., pediatric and outpatient oncology) were excluded from the project.

The first unit was a Hematopoietic Stem Cell Transplant Unit (i.e., bone marrow transplant unit [BMTU]) that recently expanded from 16 to 24 inpatient beds. This unit mainly

admits patients with bloodstream cancers or disorders who undergo stem cell transplantation. These patients require increased precautions to prevent infections because their treatment places them in an immunocompromised state. This unit recently expanded its patient population to include clinical trial patients undergoing a new immunotherapy procedure. The second unit, 4 Oncology, was a general inpatient oncology unit that recently expanded from 35 to 53 inpatient beds. Both units were in critical staffing shortages at different points in the year leading up to this project's implementation and struggled with staff retention and satisfaction.

The key stakeholders at the project setting were the director of oncology, the unit nurse managers, and the oncology nurses. The director and nurse managers were engaged through email and face-to-face talks about the purpose of the project and the benefits that it may have for the units they manage. These leaders expressed their support for the project and allowed me to recruit the nurses that worked on their unit to participate. The engagement of the nurses is described in the following participant section.

Participants

The target participants for this project included nurses on both the BMTU and 4 Oncology Units at the cancer hospital. At the time this project was initiated, the BMTU employed approximately 40 ONs, while 4 Oncology, employed approximately 60 ONs. Nurses on the BMTU give high doses of chemotherapy, perform stem cell transplantations, and monitor patients for multiple weeks post-transplant. The nurses on 4 Oncology administer chemotherapy and monitor patients' recovery post-radiation, post-surgery, and/or post-chemotherapy. In addition to working on one of these two inpatient oncology units, study participants were required to have access to a smartphone device or device that with Internet capabilities.

Participation in this project was voluntary and recruitment of the target 100 nurses concluded after attaining over 20 volunteer participants.

Recruitment. The PI used convenience sampling strategies to recruit project participants. First, an email was sent by the PI to all nurses on the two-inpatient oncology units explaining the project purpose and asking for volunteer participants. The PI also attended staff meetings on both units to explain the project and asked for volunteer participants. Two Continuing Education (CE) hours were offered to ONs as extra incentive to participate in the project. The PI worked with the hospital's Oncology Nurse Educators to obtain the CEs for ONs who participated in the two-hour educational intervention of the study. Administrative support was obtained from nurse managers of both project units, as well as the director of oncology at the project site to assist in recruiting participants. Their support was key in allowing staff the time to take part in this project and help disseminate information about the importance of the project to staff.

Description of the Intervention

The intervention included a two-hour educational session on Compassion fatigue and mindfulness followed by six weeks of mindfulness based self-care practice.

Based on the supportive-education nursing system described in self-care theory (Orem, 2001), project participants attended a two-hour educational session on Compassion Fatigue and Mindfulness led by the principal investigator (PI). At the beginning of the session, the PI reinforced the purpose of the DNP project as a quality improvement project integrating evidence from literature into practice and informed the ONs that their participation in this project was strictly voluntary and that they could, at any point during the project, decide to withdraw. After the disclaimer, participants completed a survey of basic demographic information, the

Mindfulness Attention Awareness Scale (MAAS), and the Professional Quality of Life Scale (ProQOL) (Carlson & Brown, 2005; Stamm, 2010). Data gathered through the MAAS and ProQOL served as the baseline, or “pre-intervention”, measures of mindfulness and CF for project participants.

The objectives of this educational session were threefold: 1) to educate participants on the unique risks for developing CF among ONs; 2) to improve participants’ awareness of mindfulness as a viable self-care strategy to prevent and/or address CF; and 3) to present a mindfulness smart device application for participants’ use to engage them in ongoing mindfulness training. The first hour of the educational session was devoted to identifying and discussing the risk factors for and symptoms of CF. The second hour of the educational session was devoted to describing and explaining how to engage in mindfulness meditation practice. Participants were guided through a mindfulness meditation exercise during the session to demonstrate how the practice could be used. Then the participants were introduced to two smartphone applications that they would be asked to use for guided mindfulness meditations over the next six weeks.

The PI assisted all participants in installing the two well-known mindfulness-based applications on their smart devices. Participants were asked to use these applications to perform guided mindfulness meditations for a minimum of 5 days a week for the subsequent 6-week period. The first application, Headspace, was utilized for the first two weeks to help participants develop their mindfulness meditation practice. At the start of this project, Headspace was ranked as the top mindfulness application based on a mobile application rating system (Mani, Kavanagh, Hides, & Stoyanov, 2015). The first 10 meditations on Headspace spanning a 2-week period focused on developing proper mindfulness meditation

technique. These 10 developmental meditations were free; any additional meditations on Headspace required a subscription fee. To minimize costs, a second application, Stop, Breathe & Think, was utilized for the last 4 weeks of guided mindfulness meditations. Stop, Breathe, and Think was ranked in the top 11 applications based on a mobile application rating system (Mani, Kavanagh, Hides, & Stoyanov, 2015) and was chosen due to cost. This application offered numerous free meditations, from which participants could select.

Participants were instructed to perform guided meditations for approximately 10 minutes each day, 5 days a week, over the 6-week period. At the end of 6 weeks, participants were asked to complete the MAAS and ProQOL again. These data served as post-intervention comparison data and were used to determine if a change occurred in response to participants' engagement in mindfulness training and practice.

Strategies to Address Implementation Barriers

Two major barriers to the implementation of the DNP project were anticipated at the onset of implementation: recruiting participants for the project and participant completion of the intervention plan. Participation was anticipated as an issue due to the very nature of compassion fatigue. That is, adding an additional task for oncology nurses to complete during their day may not appeal to this group whose workload has been associated with emotional exhaustion (Aycock & Boyle, 2009). As previously mentioned, the PI provided CEs to help increase participation in this project. This provided participants some compensation for their time, and helped to overcome this barrier to participation. Technology was another factor that could have affected participation because nurses in the project's target population may not have had a smartphone, a requirement for participation. To address this issue, the PI ensured that the smartphone applications selected for this project were available online thus allowing nurses to access the

intervention via a home computer with Internet connection, and therefore, reducing the technology barrier to participation. However, all nurses who participated in this project had a smartphone device.

Completion of the intervention was also an anticipated barrier because of the difficulty ensuring that participants would engage with the intervention for the entire 6-week period. A majority of the participants worked 12-hour shifts, 3 days a week, and may have found it difficult to find time for meditation on both workdays and time off. This difficulty could have led to participants missing multiple meditation sessions a week. The PI addressed this issue by asking participants during the two-hour educational session to plan their meditations for the entire 6-week period. The participants were asked to pick a time each day that they were free to perform the meditation and enter that time into their personal calendar. Their calendars served as a reminder to complete their daily intervention.

The PI also asked participants to complete a brief electronic survey every two weeks about their engagement in the mindfulness practice (Appendix D). These surveys were not used for data analysis, but merely to serve as a reminder to participants to continue their mindfulness practice. In addition, the surveys included aspects of Motivational Interviewing (MI), a method for helping individuals develop intrinsic motivation to actually change or continue a behavior (Bean et al., 2015). This was included as part of these surveys to increase the likelihood of adherence to the intervention. In this technique, the survey was used to help participants identify barriers to their participation and help them develop attainable goals proportional to their motivation level. In this case, participants who stated on the survey that they had not completed all of the meditations in a given two week period were prompted to list the barriers that prevented them from performing their meditations, to identify ways they could overcome each

barrier, and to set a more realistic goal of meditations per week if they felt that five meditations per week was not attainable for them. These self-developed goals would serve to maximize the ONs participation in the project and the number of meditations performed.

Measurements

Measurements used for data analysis were obtained from the participants pre- and post-intervention. A survey administered at the beginning of the project collected demographic info including age, years of oncology experience, years of overall nursing experience and prior experience to mindfulness meditation (Appendix B). Another survey was administered at the end of the intervention and collected information on the number of meditation days completed and whether the participant would continue their meditation practice after this project (See Appendix C). Dispositional mindfulness was measured using the Mindful Attention Awareness Scale (MAAS) that was administered pre- and post-intervention (See Appendix E). Compassion Satisfaction, burnout, and secondary traumatic stress were measured using the Professional Quality of Life Scale (ProQOL), which was administered pre- and post-intervention (See Appendix F).

Mindfulness Attention Awareness Scale (MAAS). The MAAS (See Appendix E) is a 15-item scale designed to measure dispositional mindfulness, or participants' awareness of or attention to what is happening in the present moment (Brown & Ryan, 2003). The scale helps to differentiate those who practice mindfulness from those who do not regarding their self-awareness of the present moment. The scale is predictive of self-regulated behavior and positive emotional states. The scale is a single factor scale with no subscales and exhibits high psychometric properties with Cronbach's alpha scores ranging from 0.80 to 0.90 (Carlson & Brown, 2005). Participants were asked to indicate how frequently they experience each of the

situations described in the 15 items using a Likert-type scale ranging from 1 to 6, with 1 being “Almost Always” and 6 being “Almost Never”. Participants’ responses are totaled, and then a mean score for the 15 items is calculated for each participant. Higher scores are associated with higher dispositional mindfulness.

Professional Quality of Life (ProQOL). The ProQOL (See Appendix F) is a 30-item scale designed to measure both negative and positive effects of helping others who are suffering, specifically compassion satisfaction, burnout, and secondary traumatic stress (Stamm, 2010). Burnout and secondary traumatic stress are the two components that comprise compassion fatigue. Thus, this scale was used to address both compassion satisfaction and compassion fatigue. Three sub-constructs: compassion satisfaction, burnout, and secondary traumatic stress are subscales of the ProQOL, with each measured by 10 of the 30 total items. The average internal consistency (e.g., Chronbach’s alpha) values for each subscale are approximately 0.88, 0.75, and 0.81, respectfully (Stamm, 2010). Participants identified the frequency with which they experienced each of the situations represented in 30 items, using a Likert-type scale, ranging from 1 to 5, with 1 being “Never” and 5 being “Very Often”. The items were summed for a raw score on each of the three categories. Summed scores of 22 or less denote low levels of the subscales, summed scores between 23 and 41 denote average levels of the subscales, and summed scores of 42 or more denote high levels of the subscales. It should be noted that the subscales of burnout and secondary traumatic stress are not added together to get an overall compassion fatigue score because compassion fatigue could result from either burnout or secondary traumatic stress. Keeping these subscales separate provides more information about the root causes of compassion fatigue for each participant. Raw scores for each of these subscales were compared before and at the completion of the intervention. Higher post-intervention

scores on compassion satisfaction and lower post-intervention scores on burnout and secondary traumatic stress are indicative of reduced risk for compassion fatigue of the participants.

Data Analysis

Participants who completed the pre- and post-intervention surveys as well as performed at least 5 meditation days over the 6-week time period were included in project analyses since published evidence does not associate the degree of engagement in meditation (e.g. number of days of meditation) with improvements in dispositional mindfulness and professional quality of life scores. As a reasonable starting point, inclusion was set at 5 days because, when including the initial education session, this amount represents at least one day of engagement with meditation for each week of intervention. Analysis was performed using SPSS software. Descriptive statistics were first assessed to examine all data points. A correlation analysis was conducted to determine any relationships among age, years of oncology experience, and the pre-intervention measurements from the MAAS and ProQOL. Participants' pre- and post-intervention scores on the MAAS were compared using a paired t-test to determine if the mindfulness meditation intervention improved participants' dispositional mindfulness. The pre- and post-intervention scores for the three subscales of the ProQOL (compassion satisfaction, burnout, and secondary traumatic stress) were also compared using the paired t-test. Measures were compared at a 5% significance level ($p < .05$) to determine significance for correlational analysis and paired t-test analysis.

Human Subjects

Prior to initiating this project, it was reviewed by the Institutional Review Board (IRB) at the University of North Carolina at Chapel Hill and was granted exempt status. Additionally, the target health care organizations' Nurse Research Council approved the project prior to its

implementation. Neither entity required formal signed consent of participants, but the voluntary status of the project was emphasized to participants in the recruitment and implementation phases. They were informed that their participation was voluntary and that they could choose to withdraw from the project at any point. The participants' identity was protected using participant-generated identification codes at the beginning of each survey (Appendix B; Appendix C). These codes allowed the PI to link pre- and post-intervention data for each participant without knowing the participants identity (Damrosch, 1986).

Chapter Summary

This chapter presented the steps involved in planning and implementing the DNP project. The educational and mindfulness interventions were implemented with 23 volunteer participants from two inpatient oncology units. The next chapter describes the data collected pre- and post-intervention.

CHAPTER 5: RESULTS

Chapter Introduction

This chapter presents descriptive data on the sample of participants, as well as, comparison data from the participants' pre-intervention and post-intervention survey results. The comparison data in this chapter will focus on the primary and secondary aims of this project.

Participant Characteristics

The initial sample of nurses who began this project consisted of 23 nurses working on targeted units. The final sample consisted of 15 of the initial 23 participants, for an overall retention of 65.2%. Of the 8 nurses that were not included in data analysis, 4 did not complete the post-intervention survey and an additional 4 did not complete at least 5 meditation days. Of the 8 nurses who were not included in data analysis only 37.5% reported previous experience with meditation, as compared to 60% of the 15 included participants. Descriptive information on the remaining study sample is shown in Table 1.

Table 1			
<i>Descriptive Statistics</i>			
<u>Characteristics</u>	<u>n</u>	<u>M</u>	<u>SD</u>
Age	15	35.40	11.897
Nursing Experience	15	5.3500	6.56955
Oncology Experience	15	3.8167	3.5462
Notes. 8 participants did not meet inclusion criteria and were excluded form data analysis.			

The average age of participants was 35.40 (SD = 11.897), ranging from 24 to 60 years. The average number of years of nursing experience for the project sample was 5.35 years (SD = 6.57), while the average number of years of experience as an oncology nurse was 3.82 (SD =

3.5462). There were 13 participants whose highest level of education was a Bachelors of Science in Nursing (86.67%), 1 participant with an Associate Degree in Nursing (6.67%), and 1 participant with a Masters of Science in Nursing (6.67%). At baseline, 2 participants (13.33%) scored high on the CS scale, while 13 (86.67%) scored in the average range, indicating that the study participants were not highly likely to have low compassion satisfaction. Also, 7 participants (46.67%) scored low on the secondary traumatic stress scale, while 8 (53.33%) scored in the average range, reflecting that the study participants were not likely to be experiencing high levels of secondary traumatic stress. Finally, 4 participants (26.3%) rated low on the burnout scale, while 11 (73.7%) rated average, indicating that the study participants were not likely to be experiencing high levels of burnout

Table 2 shows the Pearson Correlations between the participants' age, years of nursing experience, and years of oncology experience with the participants' baseline mindfulness rating (MAAS) and baseline ProQOL scores, which include Compassions Satisfactions (CS), Secondary Traumatic Stress (STS), and Burnout (BO). The participants' age was negatively correlated with Secondary Traumatic Stress scores ($r(13) = -.511, p = .052$), such that older participants had lower levels of secondary traumatic stress. However, this association was not strong enough to be deemed significant. Years of nursing experience had a significant positive correlation with the MAAS scores ($r(13) = .544, p = .036$), and the CS scores ($r(13) = .570, p = .026$). Years of oncology experience had a significant positive correlation with CS scores ($r(13) = .601, p = .018$), and a significant negative correlation with STS scores ($r(13) = -.555, p = .032$), and BO scores ($r(13) = -.645, p = .009$). Suggesting that nurses with more years of oncology nursing experienced less stress and burnout and higher compassion satisfaction relative to that of less experienced nurses.

Table 2			
<i>Correlations of Baseline Measures</i>			
<u>Baseline Measures</u>	<u>df</u>	<u>Correlation</u>	<u>Significance</u>
Age			
MAAS	13	0.178	0.526
CS	13	0.252	0.365
STS	13	-0.511	0.052
BO	13	-0.324	0.238
Nursing Experience			
MAAS	13	0.5444	0.036*
CS	13	0.570	0.026*
STS	13	-0.356	0.193
BO	13	-0.497	0.059
Oncology Experience			
MAAS	13	0.436	0.104
CS	13	0.601	0.018*
STS	13	-0.555	0.032*
BO	13	-0.645	0.009**
Notes. MAAS refers to the Mindfulness Attention Awareness Scale. CS refers to Compassion Satisfaction. STS refers to Secondary Traumatic Stress. BO refers to Burnout. *p < .05, two-tailed. **p < .01, two-tailed.			

Table 3 shows the Pearson correlations between the MAAS baseline scores and the baseline ProQOL measures. The participants' baseline mindfulness rating had a positive

Table 3			
<i>Correlations of Baseline Measures Cont.</i>			
<u>Baseline Measures</u>	<u>df</u>	<u>Correlation</u>	<u>Significance</u>
MAAS			
CS	13	0.489	0.065
STS	13	-0.223	0.425
BO	13	-0.241	0.386
CS			
STS	13	-0.374	0.170
BO	13	-0.726	0.002**
STS			
BO	13	0.518	0.048*
Notes. MAAS refers to the Mindfulness Attention Awareness Scale. CS refers to Compassion Satisfaction. STS refers to Secondary Traumatic Stress. BO refers to Burnout. *p < .05, two-tailed. **p < .01, two-tailed.			

correlation with baseline compassion satisfaction ($r(13) = .489, p = .065$), but it was not deemed significant. The mindfulness rating had very weak negative associations with STS and BO scores at baseline. Baseline CS scores had a significant negative association with baseline BO scores ($r(13) = -.726, p = .002$). Baseline STS scores were positively correlated with baseline BO scores ($r(13) = .518, p = .048$).

Outcomes of the Intervention

The participants included in this analysis ($n=15$) all performed 5 or more meditation days during the six-week time frame. Of the 15 participants, 11 completed at least 10 meditation days (73.33%), 7 completed at least 20 meditation days (46.67%), while only 2 completed at least 30 over the 6-week period (13.33%). The mean number of meditation days completed by the participants was 16.33 ($SD = 10.594$) (as shown in Table 4). The mean and standard deviation of the Mindfulness Attention Awareness Scale (MAAS), Compassion Satisfaction (CS), Secondary Traumatic Stress (STS), and Burnout (BO) scores are presented in Table 4.

Table 4				
<i>Measurement Statistics</i>				
	<u>Measures</u>	<u>n</u>	<u>Mean</u>	<u>SD</u>
	Meditation Days	15	16.63	10.594
Pair 1	MAAS	15	3.5733	0.863658
	MAAS'	15	3.9644	0.660383
Pair 2	CS	15	36.20	4.617
	CS'	15	38.567	4.9960
Pair 3	STS	15	24.13	4.486
	STS'	15	23.00	5.237
Pair 4	BO	15	25.33	4.499
	BO'	15	22.833	4.6509
Notes. MAAS refers to the pre- and MAAS' refers to post-intervention Mindfulness Attention Awareness Scale. CS refers to pre- and CS' refers to post-intervention Compassion Satisfaction. STS refers to pre- and STS' refers to post-intervention Secondary Traumatic Stress. BO refers to pre- and BO' refers to post-intervention Burnout. * $p < .05$, two-tailed. ** $p < .01$, two-tailed.				

Paired t-tests were used to evaluate whether participants mindfulness rating, compassion satisfaction score (CS), secondary traumatic stress score (STS), and burnout score (BO) changed post-intervention. Results are shown in Table 5. The results will be presented by project aims.

The primary project aim was to significantly reduce compassion fatigue. The mean of the two components of compassion fatigue, STS and BO, both were reduced post-intervention. The mean STS was lower post-intervention, but this change was not deemed to be significant, $t(14) = -1.162$, $p = .27$. The mean post-intervention BO score was significantly lower than the BO score at baseline, $t(14) = -2.46$, $p = .03$. The secondary aim was to increase dispositional mindfulness and compassion satisfaction scores as measured by the MAAS. The mean for MAAS and CS increased post-intervention. Post-intervention mindfulness rating was significantly higher than baseline, $t(14) = 2.26$, $p = .04$ (Table 5). The post-intervention CS score was also significantly higher than the CS scores at baseline, $t(14) = 3.10$, $p = .008$. Overall, the post-intervention dispositional mindfulness, compassion satisfaction, and burnout scores were all significantly different than they were at baseline.

Table 5			
<i>Paired Samples t test</i>			
<u>Pairs</u>	<u>df</u>	<u>t</u>	<u>Significance</u>
MAAS'-MAAS	14	2.255	0.041*
CS'-CS	14	3.102	0.008**
STS'-STS	14	-1.162	0.265
BO'-BO	14	-2.457	0.028*
Notes. MAAS refers to the pre- and MAAS' refers to post-intervention Mindfulness Attention Awareness Scale. CS refers to pre- and CS' refers to post-intervention Compassion Satisfaction. STS refers to pre- and STS' refers to post-intervention Secondary Traumatic Stress. BO refers to pre- and BO' refers to post-intervention Burnout. * $p < .05$, two-tailed. ** $p < .01$, two-tailed.			

Chapter Summary

This chapter presented the results of data measured before and after the intervention of this project. The pre- and post-intervention were compared to determine significant findings. Significant changes were noted in dispositional mindfulness, compassion satisfaction, and burnout scores of the participants. The following chapter will discuss the results and their implications on clinical practice.

CHAPTER 6: DISCUSSION

Chapter Introduction

This chapter presents the conclusions that can be drawn from the results and how they should be interpreted for use in other health care organizations. Intervention sustainability, recommendations for clinical practice, limitations of the project, and final conclusions of the study are all described in this chapter.

Discussion

Compassion fatigue among oncology nurses contributes to suboptimal care of oncology patients and burnout and increased turnover among nurses. This project implemented an evidence-based meditation intervention to prevent and mitigate the effects of compassion fatigue on oncology nurses. A sample of nurses was recruited from two inpatient oncology units at a large academic hospital to participate in a 6-week self-paced meditation intervention. Project participants attended a two-hour educational session on CF and how mindfulness meditation was a viable self-care strategy. They were instructed to perform guided mindfulness meditation via smartphone applications for 10 minutes a day, 5 days a week, for six weeks. Participants' dispositional mindfulness, compassion satisfaction, and compassion fatigue levels were measured before and after the six weeks. Project results indicate that these meditations enhanced the participants' Compassion Satisfaction and reduced their Compassion Fatigue.

The results showed that age, years of nursing experience, and years of oncology nursing experience were negatively associated with burnout and secondary traumatic stress. These findings are consistent with a previous study reporting that older, more experienced oncology

nurses have lower levels of compassion fatigue (Yu, Jiang, & Shen, 2016). Based on the theoretical framework for this project, these more experienced nurses are better able to perform self-care, reducing the risk for a self-care deficit resulting in CF (Orem, 2001). It is possible that the nurses who were not as well equipped to perform self-care and who suffered from compassion fatigue left these inpatient oncology units for other nursing jobs, leaving those who are better able to handle the occupational stressors.

The project's primary aim was to significantly reduce compassion fatigue in the ONs who participated in this study. A reduction in either of the two components of CF, burnout and secondary traumatic stress, would lower oncology nurses' risk of suffering from CF. The results show that there was a significant reduction in burnout scores, one of the two components of compassion fatigue, in nurses who completed at least 5 meditation days. The second component, secondary traumatic stress, was reduced as well, but not to a significant level. A possible explanation for this finding is that the participants had low secondary traumatic stress at baseline, which means that the traumatic care associated with caring for oncology patients was not a major cause of stress for these ONs at baseline, leaving little room for improvement.

The secondary aim of this project was to enhance compassion satisfaction and dispositional mindfulness in participants who completed the intervention. Project findings indicated improvements in both areas. The achievement of both project aims is similar to the results in other studies of mindfulness meditation interventions and their effects on compassion fatigue in oncology nurses (Duarte & Pinto-Gouveia, 2016; Hevezi, 2015). However, this project did not contribute to significant reductions in secondary traumatic stress as was seen in the literature. No conclusions can be drawn about increases in mindfulness and improvements in CS and BO among ONs who participate in the study, due to the project's design and the small

sample size. However, in this sample compassion fatigue levels were reduced and compassion satisfaction was enhanced.

Intervention sustainability. The meditation intervention introduced in this project reduced burnout and increased compassion satisfaction among project participants. However, it is unknown how long the improvements will be sustained if the participants do not continue the self-care meditation intervention. Much of the research on reducing compassion fatigue did not include research on longevity of the results thus this is an area for further research.

It is expected that after participating in this project, participants will decide whether or not to continue their meditation practice based on their experiences in this project. If they discontinue their meditation practice at the conclusion of the project, then the improvements seen in this project may disappear. However, 13 of the 15 participants stated that they would continue with their meditation practice in the future. If a majority of the participants continue their practice as they have stated, improvements resulting from this project would be sustained.

Discussions are underway with organizational leaders (i.e., the Clinical Director and nurse managers of each unit) to integrate mindfulness meditation training into the orientation of all newly hired ONs. The outcomes of these discussions will focus on ensuring that future nurses on the unit have knowledge and awareness about CF, and the tools needed to address CF readily available. Organizational leaders may also consider including mindfulness meditation in the yearly, required skills training for ONs. Building in these skills requirements will serve as a reminder of the importance of mindfulness meditation and hopefully influence nurses to start back or continue their meditation practice. Integrating mindfulness into the organization is key in ensuring that oncology nurses keep their risk of compassion fatigue low for years to come.

Recommendations for Clinical Practice

Due to the positive association between mindfulness and reduced compassion fatigue, burnout and, ultimately, nurse turnover, nurse leaders and educators should consider methods for promoting mindfulness practice among their staff. First, organizational leaders must work collaboratively to develop a plan to promote mindfulness practice. Leaders might provide break time and designated spaces for mindfulness meditation to create a work environment that encourages employees to perform self-care.

Second, educators can increase Oncology Nurse' awareness of the problem of compassion fatigue. Nurses' awareness of this problem was raised in this project through an educational session, which could be replicated in a new graduate nurse residency program or in a continuing education requirement for ONs. Educators should consider similar approaches to educate ONs on mindfulness meditation applications as a self-care practice. It is also recommended that healthcare organizations designate areas for meditation and create a work environment that encourages meditation during breaks.

Third, ONs need to engage in self-care practice. Project participants worked 12-hour shifts and were allowed two 15-minute breaks and one 30-minute break for meals. The two 15-minute breaks could be used for self-care, such as meditation to prevent self-care deficits like CF. Mindfulness meditation through smartphone applications reduces the time and money needed for a mindfulness intervention, making it a viable option for ONs. It is also recommended that nurses find time outside of work to perform self-care measures like mindfulness meditation, to refuel their compassionate energy prior to returning to their stressful work environment.

Recommendations for future research. Future studies should do more to improve recruitment and encourage participant completion of the study in order to make research findings generalizable. Adding intrinsic and extrinsic rewards, beyond continuing education credits, for participants may be a way to improve both in areas, however, researchers should be aware that doing so could also increase respondent bias. A control group could also be added to better demonstrate that the improvements are due to the mindfulness intervention and not to other unknown variables in the environment.

Limitations

There are several limitations related to this project that should be noted. First, the small sample size for this project necessarily reduces the generalizability of the findings. Further, an experimental or quasi-experimental study with random selection of participants and/or random assignment of participants into intervention groups would greatly improve the rigor of the project. However, the purpose of this DNP project was not to generate generalizable findings, but rather to implement an evidence-based intervention in a real world setting. Therefore, recruiting participants to the project and then exposing all participants to the intervention was sufficient for a beginning assessment of impact in the inpatient oncology setting.

Another limitation for this project was the loss of participants. Participants were asked to perform the meditations at times that were convenient to them. The flexibility and decreased time involvement of the intervention was believed to be a strength of the project, but these qualities might have provided insufficient structure to promote adequate mindfulness engagement among participants. Several study findings were significant, including reductions in burnout levels and enhancements of dispositional mindfulness and compassion satisfaction, despite having a low number of participants and participant completion. However, the findings

would be more powerful and generalizable if they can be replicated in a study that further addressed these limitations.

Project Dissemination Plan

There are several opportunities for disseminating the findings of this project. First, I will present the findings to the nursing research council at the large academic center of which the project was implemented. Then I will target publication of the study in a *Oncology Nursing* journal so other organizations can determine if the results of this study can be duplicated in their setting. I will also aim to present the findings at an oncology nursing conference within the next year.

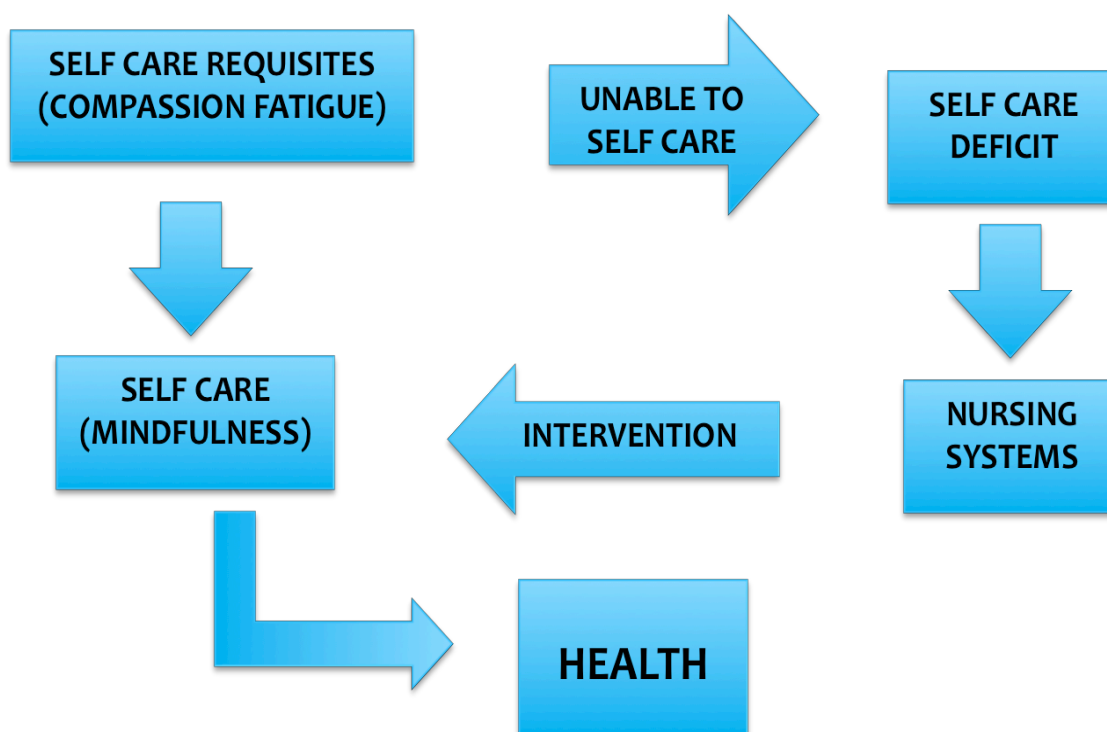
Conclusion

Oncology nurses are at risk for CF due to occupational stress as well as frequently experiencing tragic events associated with patient suffering and loss (Boyle, 2015). CF can affect the physical, emotional, social, and spiritual well-being of ONs as well as the finances of an organization if CF leads to decreased unit productivity or ON turnover. CF manifests when a nurse is unable to perform the self-care needed to cope with the occupational and traumatic stress involved in oncology nursing (Orem, 2001). Once compassion fatigue sets in, nurses may no longer have the ability to recover from the compassionate energy they have expended (Boyle, 2015). These nurses need an intervention to address their self-care deficit (Orem, 2001). Mindfulness is one strategy to improve nurses' self-care abilities and assist them in self-regulating their behaviors and emotions (Kabat-Zinn, 1990). This DNP project implemented a mindfulness meditation intervention to improve compassion satisfaction and dispositional mindfulness, while reducing compassion fatigue on inpatient oncology nurses at the North Carolina Cancer Center in Chapel Hill. This mind over matter strategy will help protect these

oncology nurses and the cancer center as a whole from the detrimental effects of Compassion Fatigue.

APPENDIX A: THEORETICAL FRAMEWORK

Orem's Self-Care Deficit



APPENDIX B: PRE-INTERVENTION SURVEY

Create your Self-Generated Identification Code (SGIC). This code will allow the researcher to match the information you provide at the end of the study to the information provided at the beginning of the study without using personal identifiers. Your SGIC is the first letter of your mother's name, the number of older brothers you have (living and deceased), the number representing the month you were born, and the first letter of your middle name.

Example:

First letter of mother's first name?	E – (Elizabeth)
Number of older brothers (living and deceased)?	01 - one
Number representing the month you were born?	10 - October
First letter of middle name? (If none, use X)	B - Beth
Subject-Generated Identification Code	E0110B

Create your Subject-Generated Identification Code below:

First letter of mother's first name? _____
Number of older brothers (living and deceased)? _____
Number representing the month you were born? _____
First letter of middle name? (If none, use X) _____
Subject-Generated Identification Code _____

Please answer the following questions:

Age _____

What nursing unit do you work on? _____

How many years have you worked in Oncology setting as a Registered Nurse? _____

How many years have you been working as a Registered Nurse? _____

What is the highest level of education you have completed in nursing?

Diploma ADN BSN MSN DNP

Do you have any previous experience with mindfulness meditation? Y/N

APPENDIX C: POST-INTERVENTION SURVEY

Create your Self-Generated Identification Code (SGIC). This code will allow the researcher to match the information you provide at the end of the study to the information provided at the beginning of the study without using personal identifiers. Your SGIC is the first letter of your mother's name, the number of older brothers you have (living and deceased), the number representing the month you were born, and the first letter of your middle name.

Example:

First letter of mother's first name?	E – (Elizabeth)
Number of older brothers (living and deceased)?	01 - one
Number representing the month you were born?	10 - October
First letter of middle name? (If none, use X)	B - Beth
Subject-Generated Identification Code	E0110B

Create your Subject-Generated Identification Code below:

First letter of mother's first name? _____
Number of older brothers (living and deceased)? _____
Number representing the month you were born? _____
First letter of middle name? (If none, use X) _____
Subject-Generated Identification Code _____

Please answer the following questions:

Have you remained working on the same oncology unit throughout this study? **Y/N**
If not, where do you work now? _____

How many days of **meditation days** did you complete? (10 minutes a day) _____

Will you continue to use meditation in your future practice? **Y/N** Why/Why Not?

APPENDIX D: MOTIVATIONAL INTERVIEWING SURVEY

How many days of meditation days did you complete over the last two weeks? (10 minutes a day) _____

If you did not complete 10 or more meditation days, what barriers prevented you from completing your meditations? Be as specific as possible

What will you do to overcome the barriers mentioned in Question 3 to ensure completion of 10 meditations over the next two weeks?

If you feel 10 meditation days is an unrealistic goal for you, write down a new, more realistic goal of meditation days to complete over the next two weeks

APPENDIX E: MINDFULNESS ATTENTIVE AWARENESS SCALE (MAAS)

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6

I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
I find myself preoccupied with the future or the past.	1	2	3	4	5	6
I find myself doing things without paying attention.	1	2	3	4	5	6
I snack without being aware that I'm eating.	1	2	3	4	5	6

APPENDIX F: PROFESSIONAL QUALITY OF LIFE (PROQOL)

When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last 30 days.

1=Never

2=Rarely

3=Sometimes

4=Often

5=Very Often

1. I am happy.
2. I am preoccupied with more than one person I *[help]*.
3. I get satisfaction from being able to *[help]* people.
4. I feel connected to others.
5. I jump or am startled by unexpected sounds.
6. I feel invigorated after working with those I *[help]*.
7. I find it difficult to separate my personal life from my life as a *[helper]*.
8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I *[help]*.
9. I think that I might have been affected by the traumatic stress of those I *[help]*.
10. I feel trapped by my job as a *[helper]*.
11. Because of my *[helping]*, I have felt "on edge" about various things.
12. I like my work as a *[helper]*.
13. I feel depressed because of the traumatic experiences of the people I *[help]*.
14. I feel as though I am experiencing the trauma of someone I have *[helped]*.
15. I have beliefs that sustain me.
16. I am pleased with how I am able to keep up with *[helping]* techniques and protocols.
17. I am the person I always wanted to be.
18. My work makes me feel satisfied.
19. I feel worn out because of my work as a *[helper]*.
20. I have happy thoughts and feelings about those I *[help]* and how I could help them.
21. I feel overwhelmed because my case *[work]* load seems endless.
22. I believe I can make a difference through my work.
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I *[help]*.

24. I am proud of what I can do to *[help]*.
25. As a result of my *[helping]*, I have intrusive, frightening thoughts.
26. I feel "bogged down" by the system.
27. I have thoughts that I am a "success" as a *[helper]*.
28. I can't recall important parts of my work with traumavictims.
29. I am a very caring person.
30. I am happy that I chose to do this work.

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